

Listing of Claims

1. (Currently amended) A process of preparing an unsaturated fatty acid, which comprises introducing, into an organism being a fungus yeast or plant, at least one isolated nucleic acid sequence encoding a polypeptide having Δ6-desaturase activity, selected from the group consisting of:
 - a) A nucleic acid sequence having the sequence shown in SEQ ID NO: 1,
 - b) nucleic acid sequences which, as a result of the degeneracy of the genetic code, are derived from the sequence shown in SEQ ID NO: 1, and
 - c) a derivative of the nucleic acid sequence shown in SEQ ID NO: 1 which encodes the polypeptide with the amino acid sequence shown in SEQ ID NO: 2 or a polypeptide having at least 95% homology at the amino acid level ~~without substantially reducing the said polypeptide still having Δ6-desaturase catalytic activity of the polypeptide,~~
and culturing the organism ~~to express said polypeptide, wherein the cultured organism contains from 1 to 80 mol% of unsaturated fatty acid based on the total fatty acid content in the organism.~~
2. (Previously presented) The process as claimed in claim 1, wherein the isolated nucleic acid sequence is derived from a plant or an alga.
3. (Previously presented) The process a claimed in claim 1, wherein the isolated nucleic acid sequence is derived from *Physcomitrella patens*.
- 4-5 (Canceled)
6. (Previously presented) The process as claimed in claim 1, wherein the organism is an oil crop.
7. (Canceled)

8. (Previously presented) The process as claimed in claim 1, wherein the unsaturated fatty acid is isolated from the organism.
9. (Currently amended) A transgenic organism selected from the group consisting of a plant and a fungus yeast comprising at least one isolated nucleic acid sequence encoding a polypeptide with $\Delta 6$ -desaturase activity, selected from the group consisting of:
 - a) a nucleic acid sequence having the sequence shown in SEQ ID NO: 1,
 - b) a nucleic acid sequence which, as a result of the degeneracy of the genetic code, is derived from the sequence shown in SEQ ID NO: 1, and
 - c) a derivative of the nucleic acid sequence shown in SEQ ID NO: 1 which encodes the polypeptide with the amino acid sequence shown in SEQ ID NO: 2 or a polypeptide having at least 95% homology 85% homology at the amino acid level ~~without substantially reducing the said polypeptide still having $\Delta 6$ -desaturase catalytic activity~~ of the polypeptide.
10. (Previously presented) A transgenic organism as claimed in claim 9, wherein the organism is a plant.

11-12 (Canceled)

13. (Previously presented) An isolated nucleic acid comprising SEQ ID NO: 1.

14.-21. (Canceled)